THAT WHICH IS CLAIMED:

1. A stator comprising:

at least two stator segments, each stator segment having;

A) at least one tooth on each of said stator segments, wherein said tooth forms a path for magnetic flux entering and leaving the stator segment; and

B) a single continuous insulated electrical winding that is only associated with its respective stator segment such that a magnetic field is induced in the respective stator segment when a current is passed through the continuous insulated electrical winding, wherein the current that is passed through the continuous insulated electrical winding of any one stator segment is of a single electrical phase.

2. The stator of Claim 1, comprising three stator segments with each stator segment having three teeth, and wherein the current that passes through the continuous insulated electrical winding associated with each stator segment is an alternating current that is displaced 120 degrees electrically from the current in the continuous insulated electrical winding associated with one other stator segment.

3. The stator of Claim 1, wherein the at least two stator segments are formed by the compaction of one or more powdered metallic materials.

4. The stator of Claim 3, wherein the at least two stator segments are formed by the dynamic magnetic compaction of one or more powdered metallic materials.

5. A stator comprised of:

at least two stator segments, each stator segment is formed by the compaction of one or more powdered metallic materials and having;

A) at least one tooth on each of said stator segments, wherein said tooth forms a substantially toroidal path for magnetic flux entering and leaving the stator segment; and

B) a single continuous insulated electrical winding that is only associated with its respective stator segment such that a magnetic field is induced in the respective stator segment when a current is passed through the continuous insulated electrical winding, wherein the current that is passed through the continuous insulated electrical winding of any one segment is of a single electrical phase.

6. The stator of Claim 5, comprising three stator segments with each stator segment having three teeth, and wherein the current that passes through the continuous insulated electrical winding associated with each stator segment is an alternating current that is displaced 120 degrees electrically from the current in the continuous insulated electrical winding associated with one other stator segment.

7. The stator of Claim 5, wherein the at least two stator segments are formed by the compaction of one or more powdered metallic materials.

8. The stator of Claim 7, wherein the at least two stator segments are formed by the dynamic magnetic compaction of one or more powdered metallic materials.

9. An electric motor comprising:

a stator comprised of one or more stator segments with each stator segment having one or more teeth and a continuous insulated electrical winding associated with said stator segment, wherein each stator segment is formed by compaction of a powdered metallic material that provides a substantially toroidal path for magnetic flux and the continuous insulated electrical winding of each stator segment is connected to an electrical phase that is not the same as the electrical phase connected to the continuous insulated electrical winding of an adjacent stator segment and wherein said tooth forms a path for magnetic flux entering and leaving the stator segment; and

a rotor having at least two magnetic poles.

10. The electric motor of Claim 9, wherein the rotor has magnetic poles that are formed by permanent magnetic material.

11. The electric motor of Claim 10, wherein the rotor is formed by dynamic magnetic compaction.

12. The electric motor of Claim 9, wherein each stator segment is formed by dynamic magnetic compaction.

13. The electric motor of Claim 12, wherein the rotor has magnetic poles that are formed of permanent magnetic material.

14. The electric motor of Claim 13, wherein the rotor is formed by dynamic magnetic compaction.

15. The electric motor of Claim 9, wherein the stator is comprised of three stator segments and each stator segment is formed by dynamic magnetic compaction and each stator segment has three teeth and the current that passes through the continuous insulated electrical winding associated with each stator segment is an alternating current that is displaced 120 degrees electrically from the current in the other two continuous insulated electrical windings and the rotor has poles formed of permanent magnetic material compacted by dynamic magnetic compaction.

16. A permanent magnet dc electric motor comprising:

a stator comprised of at least three stator segments, each stator segment formed by dynamic magnetic compaction of one or more powdered materials and each segment forming a substantially toroidal path for magnetic flux and having,

A) at least one tooth on each of said stator segments, wherein said tooth forms a path for magnetic flux entering and leaving the stator segment, and

B) a single continuous insulated electrical winding that is only associated with its respective stator segment such that a magnetic field is induced in the respective stator segment when a current is passed through the continuous insulated electrical winding, wherein the current that is passed through the continuous insulated electrical winding of any one segment is of a single electrical phase; and

a rotor having at least two permanent magnet magnetic poles, wherein said rotor is formed by compacting one or more materials about a shaft by dynamic magnetic compaction.

17. A method of forming a stator comprising:

placing one or more powdered metallic core materials into a die; and

compacting the powdered metallic core materials into one or more stator segments with each segment having one or more teeth that form a substantially toroidal path for magnetic flux to enter or exit the stator segment.

18. The method of Claim 17, wherein compacting the powdered metallic core materials is performed by dynamic magnetic compaction.

19. The method of Claim 17, further comprising:

forming a continuous insulated electrical winding about each stator segment such that a magnetic field is induced in the respective stator segment.

20. The method of Claim 19, wherein compacting the powdered metallic core materials is performed by dynamic magnetic compaction.

21. The method of Claim 17, further comprising:

placing a continuous insulated electrical winding within the powdered metallic core materials before the powdered metallic core materials are compacted.

22. The method of Claim 20, wherein compacting the powdered metallic core materials is performed by dynamic magnetic compaction.

23. A method of forming an electric motor comprising:

compacting one or more powdered metallic materials to form a stator having at least two stator segments, each stator segment having one or more teeth that form a substantially toroidal path for magnetic flux entering or exiting the stator segment and each stator segment having a respective continuous insulated electric winding for forming a magnetic field within the stator segment when said winding is electrically energized; and

placing a rotor capable of producing a second magnetic field and having at least two magnetic poles in a cooperative relationship with the stator such that magnetic poles of the rotor interact with the magnetic field within the stator element.

24. The method of Claim 23, wherein compacting one or more powdered metallic materials is performed by dynamic magnetic compaction.

25. The method of Claim 24, wherein the associated continuous insulated electric winding is embedded within each stator segment.

26. The method of Claim 23, wherein the associated continuous insulated electric winding is embedded within each stator segment.

27. The method of Claim 23, wherein the rotor has magnetic poles created by one or more permanent magnets.

28. A method of forming a stator comprising:

placing one or more powdered metallic core materials into a die; and

compacting the powdered metallic core materials into one or more stator segments with each stator segment having one or more teeth that form a substantially toroidal path for magnetic flux to enter or exit the stator segment, wherein said compaction is performed by dynamic magnetic compaction.

29. The method of Claim 28, further comprising:

forming a continuous insulated electrical winding about each stator segment such that a magnetic field is induced in the stator segment when an electrical current passes through said winding.

30. The method of Claim 29, further comprising:

placing a continuous insulated electrical winding within the powdered metallic core materials before the powdered metallic core materials are compacted such that the continuous insulated electrical winding is substantially embedded within the stator segment.